

Abstract

The present invention relates to a method for the production of fatty acid esters which comprise unsaturated fatty acids with at least three double bonds, and to free unsaturated fatty acids with a content of at least 1% by weight based on the total fatty acids present in the plants, by expressing at least one nucleic acid sequence which encodes a polypeptide with $\Delta 6$ -desaturase activity and at least one nucleic acid sequence which encodes a polypeptide with $\Delta 6$ -elongase activity. Advantageously, these nucleic acid sequences can, if appropriate, be expressed in the transgenic plant together with a third nucleic acid sequence which encodes a polypeptide with $\Delta 5$ -desaturase activity. The invention furthermore relates to the use of defined nucleic acid sequences which encode polypeptides with a $\Delta 6$ -desaturase activity, $\Delta 6$ -elongase activity or $\Delta 5$ -desaturase activity selected from a group of nucleic acid sequences, and/or to the use of nucleic acid constructs comprising the abovementioned nucleic acid sequences.